

Appl. No. 10/506,287
APPEAL BRIEF

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Appl. No: 10/506,287

Applicant(s): H. M.J. Hikspoors, et al.

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Examiner: Tarifur Rashid Chowdhury

Atty. Docket: NL 020186

Title: PROJECTION DEVICE HAVING AN INCREASED
EFFICIENCY

APPEAL BRIEF

Honorable Assistant Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal dated December 11, 2006, Applicants provide the following Appeal Brief in the above captioned application.

TABLE OF CASES

1. **W.L. Gore & Associates, Inc. v. Garlock, Inc. 220 USPQ 303, 311 (1983).**
2. **Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (CAFC 1966).**
3. **In re Bergel 130 USPQ 206, 208 (CCPA 1961).**
4. **In re Sponnoble 160 USPQ 237, 244 (CCPA 1969).**
5. **Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. 37 USPQ2d 1626 (CAFC 1996).**
6. **Cardiac Pacemakers Inc. v. St. Jude Medical Inc. 72 USPQ 2d 1333, 1336 (CAFC 2004).**
7. **Sensonics Inc. v Aerosonics Corp., 38 USPQ 2d 1551 (CAFC 1996).**
8. **Crown Operations International Ltd. v. Solutia Inc. 62 USPQ2d 1917, 1922 (CAFC 2002).**

1. Real Party in Interest

The real party in interest as assignee of the entire right and title to the invention described in the present application is Koninklijke Philips N.V. having a principle place of business at Groenewoudseweg 2, Eindhoven, The Netherlands.

2. Related Appeals and Interferences

There are no known related appeals or interferences at this time.

3. Status of the Claims

Claims 1-8 and 10 are pending in the present application. All have been finally rejected. The rejected claims 1-8 and 10 are duplicated in the Appendix.

4. Status of Amendments

A final Office Action on the merits was mailed on September 12, 2006. A Response to the Final Office Action was filed on November 13, 2006 traversing the rejections of the final Office Action. A Notice of Appeal was filed on December 11, 2006. An Advisory Action was provided in response to the Response under Rule 116. However, the Advisory Action fails to state whether the Response under Rule 116 will or will not be entered for purposes of Appeal.

5. Summary of the Claimed Subject Matter¹

In a representative embodiment, a projection device for projecting an image includes a light source (e.g., 1) for emitting light, a transmissive LCD projection subsystem (e.g., 3) and a projection means (e.g., projection lens 5) for projecting the image. The projection subsystem also includes a waveguide integrator (e.g., 30) for guiding light from an entrance to an exit (e.g., exit surface 34), the inner entrance surface (e.g., 31) of the integrator being coated with a reflective material (e.g., 33) and having a hole (e.g., hole 32) for coupling light emitted from said light source into the integrator.

¹ In the description to follow, citations to various claims, reference numerals, drawings and corresponding text in the specification are provided solely to comply with Patent Office Rules. It is emphasized that these reference numerals, drawings and text are representative in nature, and in not any way limiting of the true scope of the claims. It would therefore be improper to import any meaning into any of the claims simply on the basis of illustrative language that is provided here only under obligation to satisfy Patent Office rules for

The projection subsystem also includes a reflective polarizer (e.g., 35) provided at the exit surface of the integrator for reflecting light having the wrong polarization back into the integrator; a transmissive LCD (e.g., 36) provided at the exit of the reflective polarizer for modulating the light transmitted by the polarizer. The LCD includes an integrated reflective color filter array (e.g., 37) that reflects light having the wrong color back into the integrator. (Kindly refer to Figs. 1-3, page 4, line 1 through page 5, line 12, and claim 1.)

In another representative embodiment, a method of projecting an image includes emitting light using a light source (e.g., 1); guiding light received from the light source at an entrance (e.g., 31) to an exit (e.g., 34), using a waveguide integrator (e.g., 30), the inner entrance surface of said integrator being coated with a reflective material (e.g., 31) and having a hole (e.g., 32) for coupling light emitted from the light source into the integrator. The method also includes reflecting light having the wrong polarization back into the integrator, using a reflective polarizer (e.g., 35) provided at the exit surface (e.g., 34) of the integrator. The method further includes modulating the light transmitted by the polarizer, using a transmissive LCD (e.g., 36) provided at the exit of said reflective polarizer. The LCD has an integrated reflective color filter array (e.g., 37) for reflecting light having the wrong color back into the integrator.

6. Grounds of Rejection to be Reviewed on Appeal

The issues in the present matter are whether:

- I. Claims 1-8 and 10 are properly rejected under 35 U.S.C. § 103(a) in view of *Swanson, et al.* (U.S. Patent 5,889,567), further in view of *Weber, et al.* (U.S. Patent 6,025,897) and further in view of *Moon, et al.* (U.S. Patent 6,882,386); and
- II. Objections to the Specification are proper.

7. Argument

In this portion of the Appeal Brief, arguments are provided. Notably, because the claims on Appeal are in original form, Applicants maintain previous arguments for patentability provided in response to Office Actions.

Analysis of obviousness under 35 U.S.C. §103 requires determination of the scope and content of the prior art, the differences between the prior art, and the claims at issue, and the level of ordinary skill in the pertinent art. *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 220 USPQ 303, 311 (1983) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (CAFC 1966)). Moreover, there must have been something present in the teachings of the prior art to suggest to one skilled in the art that the claimed invention would have been obvious. *W.L. Gore & Associates* at 311 (citing *In re Bergel* 130 USPQ 206, 208 (CCPA 1961)); and *In re Spinnoble* 160 USPQ 237, 244 (CCPA 1969)).

Furthermore, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is a reason, suggestion or motivation to do so. The reason, suggestion or motivation may come from references themselves; from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in the particular field; or from nature of the problem to be solved to do so found in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.* 37 USPQ2d 1626 (CAFC 1996). Moreover, prior knowledge in the field must be supported by tangible teachings of reference materials. *Cardiac Pacemakers Inc. v. St. Jude Medical Inc.* 72 USPQ 2d 1333, 1336 (CAFC 2004). However, hindsight is never an appropriate motivation for combining references and/or the requisite knowledge available to one having ordinary skill in the art. To this end, relying upon hindsight knowledge of applicants' disclosure when the prior art does not teach nor suggest such knowledge results in the use of the invention as a template for its own reconstruction. This is wholly improper in the determination of patentability. *Sensonics Inc. v. Aerosonics Corp.*, 38 USPQ 2d 1551-1554 (CAFC 1996), citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 220 USPQ 303. Moreover, the determination of

obviousness cannot be based on the hindsight combination of components selectively culled out from the prior art to fit the parameters of the claims at issue. *Crown Operations International Ltd. v. Solutia Inc.* 62 USPQ2d 1917, 1922 (CAFC 2002).

I. Rejection of Claims 1-8, 10 rejected under 35 U.S.C. § 103(a) in view of Swanson, et al. further in view of Weber, et al. (U.S. Patent 6,025,897) and further in view of Moon, et al.

i.) The Applied Art Fails to Disclose Features of Claims 1 and 10

Claim 1 is drawn to a projection device and includes, inter alia,:

- a. a waveguide integrator for guiding light from an entrance to an exit, the inner entrance surface of the integrator being coated with a reflective material;
- b. a transmissive LCD provided at the exit of a reflective polarizer for modulating the light transmitted by said polarizer, said LCD having an integrated reflective color filter array.

Claim 10, which is drawn to a method of projecting an image, includes similar features.

a. Swanson, et al. does not disclose the inner entrance surface of the integrator's being coated with a reflective material

The Office Action asserts that the reference to Swanson, et al. discloses a waveguide integrator that has an entrance surface coated with a reflective material. In particular, the Office Action states:

“...the inner entrance surface of the integrator being coated with a reflective material (322).”

A review of Fig. 19 and its supporting disclosure in the reference to Swanson, et al. reveals blocking elements 322 on a mask 320. There is no description of the function of the blocking elements 322, and thus no description that the blocking elements are coatings of reflective material on the inner entrance surface of an integrator as claimed.

The reference does disclose that the light pipe 330 has four reflective surfaces 332. Moreover, the reference discloses is that the light pipe preferably a rod having a rectangular cross-section with reflective surfaces on the peripheral surface of the rod. Thus, and as clearly shown in Fig. 19, there are reflective surfaces 332 on the top and side surfaces of the rectangular light pipe 330, constituting the four reflective surfaces. There is no disclosure of the inner entrance surface's being coated with a reflective material as claimed. Furthermore, the reference does not disclose that the reflective surfaces are coated as claimed. (Kindly refer to Fig. 19 and column 17, line 27-column 18, line 15 of *Swanson, et al.*).

For at least the reasons set forth above, Applicants respectfully submit that the as relied upon in the Office Action, the reference to *Swanson, et al.* fails to disclose a waveguide integrator for guiding light from an entrance to an exit, *the inner entrance surface of the integrator being coated with a reflective material.*

Therefore, because the applied art fails to disclose at least one element of claim 1 and of claim 10, a proper prima facie case of obviousness has not been established. Accordingly claim 1 and the claims that depend therefrom, and claim 10 are patentable over the applied art.

b. Moon, et al. fails to disclose an LCD having an integrated reflective color filter array

The Office Action asserts that the reference to *Moon, et al.* cures the defects of both *Swanson, et al.* and *Weber, et al.*, which both lack the disclosure of an LCD with an integrated reflective color filter array. For at least the reasons set forth below, Applicants respectfully submit that the applied reference to *Moon, et al.* lacks at least the disclosure of this feature of claims 1 and 10, and therefore fail to cure the conceded defects of *Swanson, et al.* and *Weber, et al.*

The Office Action asserts that the reference to *Moon, et al.* discloses "...a display device wherein an LCD integrated with a reflective color filter (12) made of cholesteric liquid crystal polymer (applicant's reflective color filter) is provided..."

In the Advisory Action, in reply to Applicant's position that *Moon, et al.* does not

disclose the claimed reflective color filter array, the Examiner states that “Moon does disclose an array of color filters/different primary colors for different pixels as is standard in the art.” However, the Examiner fails to provide a recitation of where moon discloses the claimed array or evidence of that which is allegedly standard practice in the art.

Applicants note that the color filter 12 is disclosed in connection with a cholesteric liquid crystal display (CLC) device with a CLC filter 12. There is no disclosure in the description of the color filter 12 that the filter is comprised of an array of filters. Therefore, the reference lacks at least the disclosure that the color filter array 12 is an array as claimed.

Furthermore, at pages 6 and 7 of the Final Office Action, the Examiner asserts that “...it is respectfully pointed out to applicant that Moon discloses that the color filter displays red, green and blue color and thus it would have been obvious to one of ordinary skill in the art that Moon discloses a color filter array.” Applicants fail to follow the logical step of obviousness between a three-color filter and an reflective color filter array as claimed. To wit, the reflective color filter array 37 shown in Fig. 3b of the filed application shows the ordered structure of the color filter. Applicants respectfully submit that the color filter 12 of the reference to *Moon, et al.* is not the claimed array. (Kindly refer to Fig. 1 and supporting description *Moon, et al.*)

In addition, Applicants respectfully submit that the rejection based on *Moon, et al.* is improper for lacking basis in evidence. To this end, Applicants respectfully submit that the Examiner has provided no evidence whatsoever in support of the proffered position that “it would have been obvious to one of ordinary skill in the art that Moon discloses a color filter array.” Without such evidence, it is respectfully submitted that this assertion is merely the application of hindsight in view of Applicants’ disclosure to realize the claimed invention. Applicants respectfully request the citation in the prior art of this claimed feature, or else withdrawal of the rejection. If the assertion is from the personal knowledge of the Examiner, an affidavit under 37 C.F.R. § 1.104(d) (2) is respectfully requested. (Applicants note that this request was made in the Response under Rule 116, but did not result in the proffering of such evidence.)

For at least the reasons set forth above, Applicants respectfully submit that the as

relied upon in the Office Action, the reference to *Moon, et al.* fails to disclose a *reflective color filter array*. Therefore, because the applied art fails to disclose at least one element of claim 1 and of claim 10, a proper prima facie case of obviousness has not been established. Accordingly claim 1 and the claims that depend therefrom, and claim 10 are patentable over the applied art.

ii.) The Office Action Applies Impermissible Hindsight in Rejecting Claims 1 and 10

Applicants respectfully submit that the Office Action has cobbled a rejection using Applicants' claims as templates for their own reconstruction. To this end, the Examiner relies on *Swanson, et al.* for the teaching of all but two features of claims 1 and 10. Next, the Office Action turns to *Weber, et al.* in attempt to cure one of the defects of *Swanson, et al.* However, there remains one missing piece of the claims' puzzle, and thus, the Examiner turns to *Moon, et al.* Respectfully, Applicants submit that with each defect of the applied art, the more tenuous the stretch to the next reference becomes. In this case, with the need to augment the rejection with a third reference, it is exceedingly difficult to argue that one skilled in the art would have arrived at Applicants' invention without applying hindsight. The strength of the argument becomes even more precarious because *Moon, et al.* fails to disclose specifically the reflective color filter array, requiring the allegation that such an array would have been obvious to one skilled in the art having the benefit of *Moon, et al.*

For at least the reasons set forth above, Applicants respectfully submit that rejection of claims 1 and 10 and the claims that depend therefrom is improper and should be withdrawn.

II. The Objections to the Specification

Applicants noted the objections to the Specification with regard to suggested headings. Applicants respectfully declined to provide such headings noting that these are not required in accordance with MPEP § 608.01(a). Applicants note that the traversal of

this objection was also included in the Responses dated June 5, 2006 and November 13, 2006. There has been no mention of this traversal in subsequent communications from the USPTO. Proper consideration of the traversal is respectfully requested.

8. Conclusion

In view of the foregoing, applicant(s) respectfully request(s): the withdrawal of all objections and rejections of record; the allowance of all the pending claims; and the holding of the application in condition for allowance.

Respectfully submitted on behalf of:

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Appendix
Claims on Appeal

Claims on Appeal:

1. A projection device for projecting an image comprising a light source for emitting light, a transmissive LCD projection subsystem and a projection means for projecting the image, said projection subsystem comprising:
 - a waveguide integrator for guiding light from an entrance to an exit, the inner entrance surface of said integrator being coated with a reflective material and having a hole for coupling light emitted from said light source into said integrator,
 - a reflective polarizer provided at the exit surface of said integrator for reflecting light having the wrong polarization back into said integrator,
 - a transmissive LCD provided at the exit of said reflective polarizer for modulating the light transmitted by said polarizer, said LCD having an integrated reflective color filter array for reflecting light having the wrong color back into said integrator.
2. A projection device as claimed in claim 1, wherein said reflective color filter array comprises a dichroic mirror or a polymer layer.
3. A projection device as claimed in claim 1, wherein said reflective color filter array is located at the inner surface of one of the substrates of said LCD and between said polarizer and said LCD.
4. A projection device as claimed in claim 1, wherein said reflective color filter array comprises a number of color stripes having a 3:1 aspect ratio.
5. A projection device as claimed in claim 1, wherein said waveguide integrator further comprises retardation films for changing the polarization of light reflected back into the integrator.
6. A projection device as claimed in claim 1, wherein the surface of the LCD outside the visible window is made reflective.

7. A projection device as claimed in claim 1, wherein said reflective colour filter array has an orthogonal or a diagonal configuration.
8. A projection device as claimed in claim 1, wherein said integrator is made of a higher refractive index material for reflecting light.
10. A method of projecting an image, the method comprising the steps of:
 - emitting light using a light source,
 - guiding light received from said light source at an entrance to an exit, using a waveguide integrator, the inner entrance surface of said integrator being coated with a reflective material and having a hole for coupling light emitted from said light source into said integrator,
 - reflecting light having the wrong polarization back into said integrator, using a reflective polarizer provided at the exit surface of said integrator,modulating the light transmitted by said polarizer, using a transmissive LCD provided at the exit of said reflective polarizer, said LCD having an integrated reflective color filter array for reflecting light having the wrong color back into said integrator.

Appendix

Evidence (None)

Appendix

Related Proceedings (None)